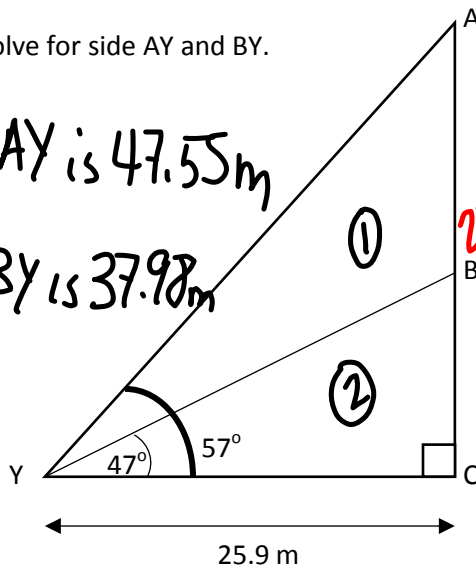


## 5.6 Solving Double Triangles

Example 1: Solve for side AY and BY.

∴ Side AY is 47.55m  
 & side BY is 37.98m



$\Delta AYC$

$$\cos 57^\circ = \frac{25.9}{AY}$$

$$\frac{1}{\cos 57} = \frac{AY}{25.9}$$

$$AY = \frac{25.9}{\cos 57}$$

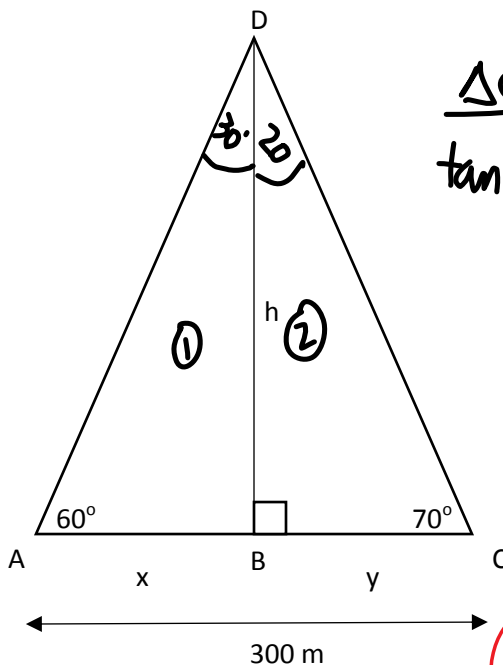
$$AY \approx 47.55$$

$\Delta BYC$

$$\cos 47^\circ = \frac{25.9}{BY}$$

$$BY \approx 37.98$$

Example 2: Find the height of the triangle, to the nearest metre.



$$x + y = 300$$

$\Delta 1$

$$\tan 30^\circ = \frac{x}{h}$$

$$x = h \tan 30$$

$\Delta 2$

$$\tan 20^\circ = \frac{y}{h}$$

$$y = h \tan 20^\circ$$

$$x + y = 300$$

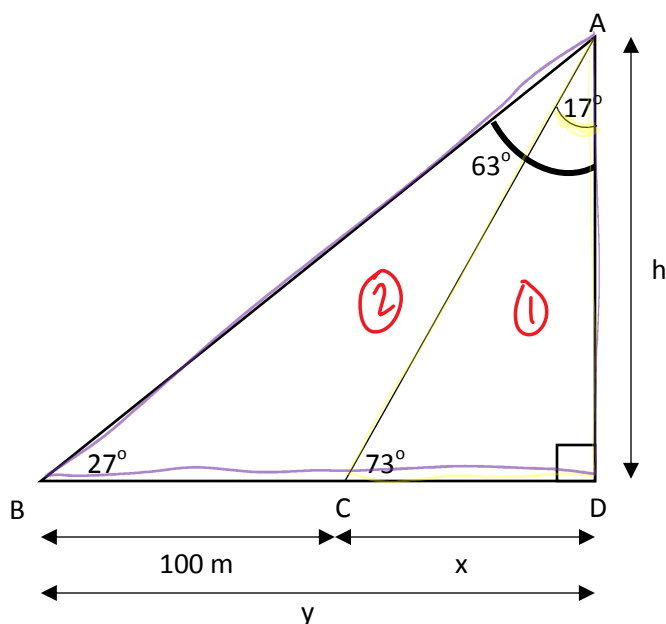
$$h \tan 30^\circ + h \tan 20^\circ = 300$$

$$h(\tan 30^\circ + \tan 20^\circ) = 300$$

$$h = \frac{300}{(\tan 30^\circ + \tan 20^\circ)}$$

$$h \approx 318.7$$

Example 3: Find the height of the triangle



$$y - x = 100$$

$\Delta 1$

$$\tan 17^\circ = \frac{x}{h}$$

$$x = h \tan 17^\circ$$

$\Delta 2$

$$\tan 63^\circ = \frac{y}{h}$$

$$y = h \tan 63^\circ$$

$$y - x = 100$$

$$h \tan 63^\circ - h \tan 17^\circ = 100$$

$$\frac{h (\tan 63^\circ - \tan 17^\circ)}{(\tan 63^\circ - \tan 17^\circ)} = \frac{100}{(\tan 63^\circ - \tan 17^\circ)}$$

$$h = 60.35$$

∴ the height of the  $\Delta$  is 60.35 m

Assigned Work: p. 413-414 #11, 15 and  
p. 417 # 14\*, 15, 16